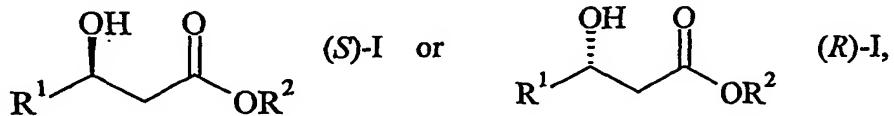


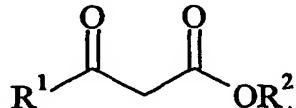
## Claims

1. Process for the preparation of enantiomerically pure (*S*)- or (*R*)-4-halo-3-hydroxybutyrate of formula



wherein R<sup>1</sup> is CH<sub>2</sub>X, CHX<sub>2</sub> or CX<sub>3</sub> and X independently represents Cl and/or Br and wherein R<sup>2</sup> is C<sub>1-6</sub>-alkyl, C<sub>3-6</sub>-cycloalkyl, aryl or aralkyl, each aryl or aralkyl being optionally further substituted with one or more C<sub>1-4</sub>-alkyl groups and/or halogen atoms,

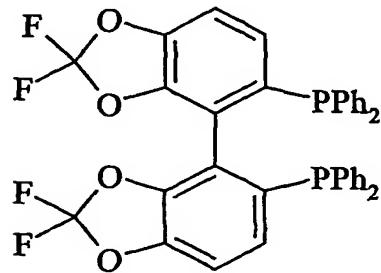
which process comprises the asymmetric hydrogenation of 4-halo-3-oxobutyrate of formula



II,

wherein R<sup>1</sup>, R<sup>2</sup> and X are as defined above

in the presence of a catalyst of a ruthenium complex comprising a chiral ligand of formula



III.

2. The process of claim 1, wherein the ruthenium complex comprising a ligand of formula III comprises at least one diene, alkene or arene or polar solvent molecule as stabilizing ligand.

3. The process of claim 1 or 2, wherein the ruthenium complex comprising a ligand of formula III comprises at least one molecule of 1,5-cyclooctadiene or *p*-cymene as stabilizing ligand.

4. The process of one of claims 1 to 3, wherein the hydrogenation is carried out in a solution comprising a polar solvent selected from the group consisting of C<sub>1-4</sub>-alcohols, dimethylsulfoxide, dimethylformamide, acetonitrile and mixtures thereof, wherein the solvent optionally contains further solvent additives.
5. The process of any one of claims 1 to 4, wherein the counterion of the ruthenium complex is selected from the group consisting of Cl<sup>-</sup>, Br<sup>-</sup>, I<sup>-</sup>, BF<sub>4</sub><sup>-</sup>, AsF<sub>6</sub><sup>-</sup>, SbF<sub>6</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, ClO<sub>4</sub><sup>-</sup> and OTf<sup>-</sup>.
6. The process of any one of claims 1 to 5, wherein the ruthenium complex is prepared by mixing the complex of formula [Ru<sub>2</sub>Cl<sub>4</sub>(cym)<sub>2</sub>] with the Fluoxphos ligand in a polar solvent.
7. The process of any of claims 1 to 6, wherein the hydrogen pressure during the reaction is in the range of 1 to 60 bar and preferably in the range of 2 to 35 bar.